IN THE CLAIMS

1.-6. (Cancelled).

7. (Currently amended) An implantable pacemaker comprising:

a pulse generator adapted to interact with at least one ventricle of a heart to deliver pacing pulses to that ventricle;

a cardiac signal detector adapted to interact with the heart to detect cardiac signals originating from an atrium of the heart;

an arrhythmia detector connected to the cardiac signal detector that analyzes said cardiac signals to detect an occurrence of atrial arrhythmia;

an impedance measuring unit adapted to interact with said atrium to measure an atrial impedance therein; and

a controller connected to said pulse generator, said arrhythmia detector and said impedance measuring unit, said controller ~~controlling~~ being configured to control said pulse generator to cause said pulse generator to deliver said pacing pulses to the ventricle in a P-wave synchronous mode as long as no atrial arrhythmia is detected by said arrhythmia detector, and ~~said controller switching~~ to switch control of said pulse generator to a non-P-wave synchronous mode if atrial arrhythmia is detected by said arrhythmia detector, and ~~said controller determining~~ to determine an atrial distention of said atrium from the atrial impedance measured by said impedance measuring unit and, in said non-P-wave synchronous mode, ~~controlling~~ to control said pulse generator to increase a delivery rate of said pacing pulses to an increased delivery rate that said controller, by continuing to evaluate

said atrial impedance measured by said impedance measuring unit, is determined by said controller to decrease ~~decreases~~ said atrial distention during said atrial arrhythmia.

8. (Cancelled).

9. (Currently amended) An implantable pacemaker as claimed in claim 7 [[8]], further comprising:

a pacemaker housing containing said pulse generator, said cardiac signal detector, said impedance measurement unit, said arrhythmia detector and said controller, said pacemaker housing having an electrically conductive area exposed to tissue;

a bipolar atrial lead connected to said pulse generator, said bipolar atrial lead comprising an atrial lead body carrying an atrial lead body carrying an atrial electrode and a ring electrode; and

said impedance measuring unit injecting an impedance measurement current into the atrium through said atrial electrode and using said electrically conductive area of said housing as a return electrode, ~~so that~~ by measuring a voltage representing said atrial impedance ~~is measured~~ between said atrial electrode and said housing.

10. (Currently amended) An implantable pacemaker as claimed in claim 7, further comprising:

a housing containing said pulse generator, said cardiac signal detector, said impedance measuring unit, said arrhythmia detector and said controller, said pacemaker housing having an electrically conductive area exposed to tissue;

a tripolar atrial lead connected to said pulse generator, said tripolar atrial lead comprising an atrial lead body, adapted for implantation in the right atrium of the heart, carrying a first ring electrode and a second ring electrode; and

said impedance measuring unit injecting an atrial impedance measurement current into the atrium through said atrial electrode and using said electrically conductive area of said housing as a return electrode, and measuring a voltage representing said atrial impedance between said first and second ring electrodes.

11. (Currently amended) An implantable pacemaker as claimed in claim 7 wherein said controller ~~controls~~ is configured to control said pulse generator to deliver said pacing pulses to the ventricle at a delivery rate controlled in a closed loop by varying the delivery rate to maintain said atrial impedance substantially equal to a reference value, with said measured delivery rate that decreases said atrial distention during atrial arrhythmia occurring when said atrial impedance equals said reference value.

12. (Currently amended) An implantable pacemaker as claimed in claim 7 wherein said controller is configured to repetitively ~~stores~~ store successively obtained values of said atrial distention and averages said values over a predetermined period of time.